

Monitoring Air Pollution Transport

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Keywords: GEOSS, monitoring, air pollution, transport, decision-making

Advancements in the remote sensing of environmental conditions over the past decade have been recognized by governments around the world and have led to the development of the international Global Earth Observation System of Systems (GEOSS) 10-Year Implementation Plan. The plan for the US contribution to GEOSS has been put forth in *The Strategic Plan for the U.S. Integrated Earth Observation System (IEOS)*. The approach within US IEOS is to focus on specific and achievable societal benefits—one of them being our ability to understand the impact of poor air quality on human health and well-being—by integrating the nation’s Earth observation capabilities.

Over the next decades, the data need to help inform air quality management decisions, and policies will be expanding from urban (local) and regional scales to regional, continental, and international scales. Decisions and policies that address these larger spatial scales require data that spans multiple temporal and spatial scales of critical environmental variables. Through integration with regional and local observational capabilities, an understanding of air quality will begin to emerge on a global-to-local basis. Such information can serve as a basis for a global, “pollution-oriented” earth observation system. Through an enhanced observational system integrated with modeling, indicators, and decision support tools, data will be transformed into new information to help the public avoid harmful exposures and help air quality managers cope more effectively with air pollution episodes over the short and long terms.

Through EPA’s Office of Research and Development (ORD) Advanced Monitoring Initiative (AMI), EPA is taking a leading role in prototyping potential “systems-of-systems” for air quality and human health that can be used to support decision-making processes. This poster highlights several AMI multi-agency collaborative projects among government and academia and their contribution to a larger GEOSS framework.

- Integration and Evaluation of Global Emissions Inventories in the NEISGEI Framework
Terry Keating, Stefan Falke, Rudolf Husar, Gregory Stella
- Application of Satellite Data for Three-Dimensional Monitoring of PM_{2.5} Formation and Transport in San Joaquin Valley (SJV), CA
Rebecca Rosen, James Szykman

- Ground-Level Ozone Concentrations Based on Satellite Observations and Surface Monitoring in Support of US–Mexico Border 2012 Program Environmental Health Decisions
Vance Fong, Debbie Lowe, Jan Baxter
- Application on Integrated O₃ Observing System to Houston–Galveston–Gulf Shore Region and Eastern Great Lakes Region
James Szykman, John Lyon
- Clean Air Interstate Rule (CAIR) Accountability Assessment: An Integrated Model-Measurement Approach to Assess Synoptic-Scale Transport of Sulfates Aerosols
Fred Dimmick, Alan Rush, Rich Scheffe
- Receptor Modeling Applications for State Implementation Plans
Shelly Eberly
- Application of Advanced Monitoring to Characterize Near Roadway Air Quality and Exposures
Rich Baldauf, Eben Thoma
- Monitoring Mercury Speciation and Reaction in Utility Emission Plumes
Matthew Landis, Jeff Ryan

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